Remarks/Arguments

A. Status of the Specification

The specification has been amended to address the Examiner's objection.

B. Status of the Claims

No claims have been amended. Claims 34 and 39 are cancelled. Claims 72-73 are added. Non-limiting support for these new claims can be found in the specification at page 2, lines 18-33.

Therefore, claims 28-33, 35-38, 40-61, and 72-73 are pending, with claims 62-71 being withdrawn from consideration at this time.

C. Restriction Requirement

The Examiner requests restriction to one of the following two groups: Group I: Claims 28-62, drawn to a method; Group II: Claims 62-71, drawn to an article. Office Action at page 3. In support of this restriction, the Examiner alleges that these Groups "do not relate to a single general inventive concept" as they lack a special technical feature in view of cited art references U.S. Patent 6,143,358 (Singh), U.S. Patent 5,922,787 (Kondo), and U.S. Patent 6,682,773 (Medwick). *Id.*

Applicant again elects Group I (claims 28-62) with traverse. A restriction between Groups I and II is improper for at least all of the reasons discussed in detail in the following section addressing the obviousness rejection. For instance, the following section provides arguments confirming the existence of a shared special technical feature of claims 28 and 62 (*e.g.*, a layer of at least one non-fluorinated metallic oxide and/or at least one non-fluorinated metallic hydroxide on the MgF_2 temporary protective layer) that is neither disclosed nor suggested by the combined teachings of the cited art references.

Therefore, Applicant requests that the restriction between Groups I and II be removed and that withdrawn claims 62-71 be rejoined.

D. The Obviousness Rejection Is Overcome

Claims 28-61 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Singh and U.S. Patent 2,628,921 (Weinrich) in view of Kondo in further view of Medwick "and the admitted prior art." Action at page 5.

Applicant disagrees with the rejection. Claims 28-61 are patentable over the cited art references. The following subsections confirm that a *prima facie* case of obviousness has not been established, as any combination of the cited references fail to disclose or suggest the use of a MgF_2 layer as a temporary layer. Further, the teachings of the references, when considered as a whole, fail to disclose or suggest the claimed invention. If anything, when the cited references are considered together as a collective body of work, a person of ordinary skill in the art would be led in a path that is divergent from the claimed invention—*i.e.*, the combined teachings actually teach away from the claimed invention.

1. Applicant's Claimed Invention and Corresponding Advantages

Independent claim 28 currently recites:

> A method for treating an ophthalmic lens comprising two main sides, wherein at least one side comprises an organic or mineral external layer coated with a MgF_2 temporary protective layer, comprising one of the following treating steps:
>
> a liquid phase chemical treatment of the temporary protective layer, leading to the formation of MgO and/or $Mg(OH)_2$ in and/or on the temporary protective layer; or
>
> a deposit of at least one non-fluorinated metallic oxide and/or of at least one non fluorinated metallic hydroxide on the temporary protective layer through transfer thereof from an electrostatic film or through vacuum evaporation thereof directly on the temporary protective layer.

As explained in the specification, "[t]he present invention relates to the filed of trimming lenses, more particularly ophthalmic lenses." By treating the MgF_2 temporary protective layer in

a manner described in claim 28, the corresponding lens can be successfully subjected to the trimming process within a short period of time after application of the MgF_2 temporary protective layer onto the lens (*e.g.*, "after one hour" of application). *See* Applicant's specification at page 2, lines 28-33.

By comparison, the specification explains that a lens having a MgF_2 temporary protective layer which has not been treated in a manner described in claim 28 may not be successfully trimmed until a period of at least 48 hours have lapsed. *Id.* at lines 18-23. Otherwise, "the acorn-holding pad system tends to detach itself from the lens spontaneously or under a very weak effort." *Id.* at lines 23-27.

Therefore, Applicant's claimed treating process substantially decreases the turn-a-round time for trimming an ophthalmic lens where a MgF_2 temporary protective layer has been deposited onto the uppermost external surface of the lens. Indeed, Applicant's specification at pages 12-14 provides data confirming this.

2. An Obviousness Analysis In View of *KSR* Confirms the Patentability of the Claimed Invention

In order to sufficiently address the obviousness rejection, the scope and content of each art reference must individually be determined. *KSR Int'l Co. v. Teleflex, Inc.*, 550 U.S. slip op. at 2 (2007) ("Under §103, the scope and content of the prior art are to be determined...") (quoting with approval *Graham v. John Deere Co. of Kansas City*, 383 U. S. 1 (1966)). This allows for an understanding of what the combined teachings of the references ultimately disclose and suggest. Therefore, the following subsections provide an individual analysis on the scope and content of each art reference, what their combined teachings disclose and suggest, and why the combined teaches are either improper (*i.e.*, instances where it is improper to combine references) or fail to render the claimed invention obvious.

a. Singh

Singh describes the binding of a hydrophobic film at the surface of a MgF_2 antireflection layer through a metal oxide layer interleaved between said hydrophobic film and said MgF_2 layer. This is illustrated by Singh in FIG. 1 below (illustrations and text added):

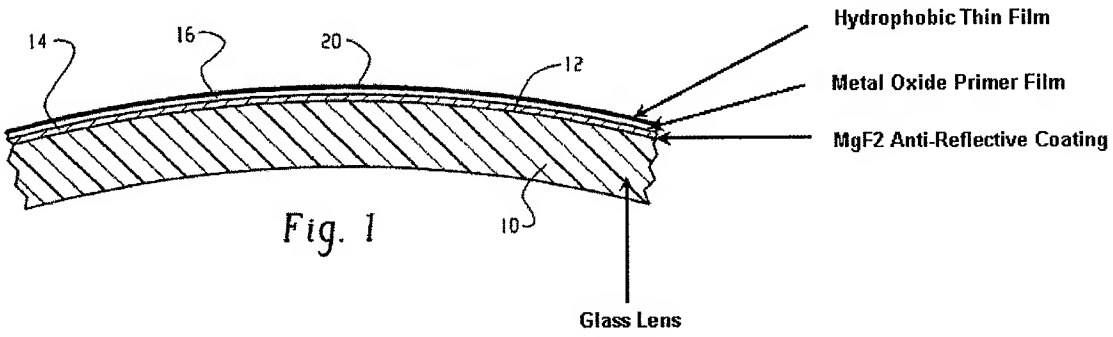


Fig. 1

As explained by Singh, "FIG. 1 shows a substrate in the form of a glass lens 10 having a surface 12 coated with a magnesium fluoride antireflection coating 14. A metal oxide primer film 16 is bonded to antireflective coating 14 in accordance with the present application, and a hydrophobic thin film 20 of amphiphilic molecules is bonded to primer film 16" (col. 3, ll. 6-12).

Due to the surface of the MgF_2 layer being chemically inert (col. 1, l. 47), direct binding of the hydrophobic film is not possible. Hence, Singh discloses (1) the deposition of a metal oxide layer onto the MgF_2 anti-reflective coating layer and (2) then subjecting said metal oxide layer to exposure to ambient atmosphere that contains moisture, so as to cause hydrolysis and the formation of active hydroxyl groups at the external surface (which becomes activated, col. 2, ll. 32-35), leading to the binding of a hydrophobic film. Note that Singh is devoid of any reference to the deposition of a MgO or $Mg(OH)_2$ layer on the surface of the MgF_2 layer. Rather the deposition of a SiO_2 (or another metal oxide) layer (col. 2, l. 50, col. 4, l. 20) is contemplated.

The Singh MgF_2 layer is a permanent layer on the surface of the lens, as it provides anti-reflective properties (abstract). Indeed, a hydrophobic thin film is stacked onto the MgF_2 layer

via the intermediate metal oxide primer layer (FIG. 1). The hydrophobic thin film provides the resulting lens with protection against abrasion and stains (col. 1, ll. 5-7).

Singh also explains that a MgF_2 layer is "porous and behaves like a hydrophilic surface with an affinity for dirt and oils" (col. 1, ll. 1-34). This has the disadvantage of staining the lens surface and distorting and reducing light transmission through the lens (col. 1, ll. 34-35). Hence, Singh's focus of adding a hydrophobic coating to the uppermost surface of the lens (see above illustration).

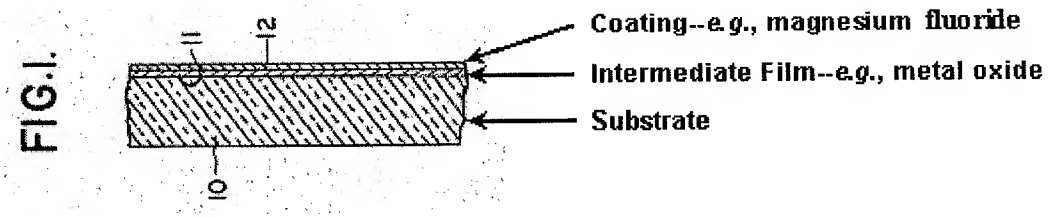
b. Weinrich

Weinrich discloses "a means of forming metallic oxide films which constitute intermediate layers in multiple layer articles...." (col. 1, ll. 1-4). In particular, this reference describes the deposition of a film onto a substrate, wherein said film is made of an easily oxidizable metal, followed with the deposition onto said film of a non oxidizable and oxygen-permeable coating. In a final step, the metallic film is converted into metal oxide. Such oxidation takes place through the non oxidizable coating (col. 5, ll. 54-66) as described below:

> The present invention therefore involves essentially a method of making a multiple layer article in which an unoxidized or partially unoxidized film of material capable of ready oxidation or further oxidation directly to a metallic oxide is deposited upon a support body or structure and coated with an oxygen pervious coating which comprises a film of material relatively difficult to oxidize and capable of retaining its original character during the subsequent treatment, and finally oxidizing the first film to a metallic oxide through the coating.

In example 3, the oxidizable material is magnesium and the non oxidizable material is MgF_2. The process provides a MgO film coated with a MgF_2 film. The MgF_2 film does not undergo oxidation. Its stability is confirmed in example 4, wherein an Al/MgF_2 stack is

transformed, after oxidation, into an Al_2O_3/MgF_2 stack. Therefore, and contrary to the Examiner's contention, Weinrich does not describe a method for oxidizing MgF_2 into MgO. This fact is self-evident when reviewing FIG. 1 of Weinrich below which confirms that a MgO film is coated with a MgF_2 film which is opposite of Applicant's claimed method (illustrations and text added):



Both the metal oxide film and the MgF_2 film are present. Further, the "coating" layer (such as a MgF_2 layer) in FIG. 1 is a permanent layer which can impart "reflection altering" properties to the coated substrate (col. 3, ll. 27-32).

If anything, Weinrich appears to teach away from the claimed invention. For instance, Weinrich discloses a process where a MgF_2 film is deposited onto a MgO film (FIG. 1). By comparison, Applicant's claimed treatment process concerns "a deposit of at least one non-fluorinated metallic oxide and/or of at least one non fluorinated metallic hydroxide on the temporary protective layer." That is, a person of ordinary skill in the art, upon reading Weinrich, would be led in a divergent path from the path taken by Applicant—*i.e.*, Weinrich discloses a process where a MgF_2 film is deposited onto a MgO film, whereas Applicant's claimed treating process concerns the deposition of a non-fluorinated metallic oxide and/or of at least one non fluorinated metallic hydroxide on the temporary protective layer. *See In re Gurley*, 27 F.3d 551, 553 (Fed. Cir. 1994) ("A reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the

applicant."). This is rather persuasive evidence that the claimed invention is patentable over the cited art. *See In re Peterson*, 315 F.3d 1325, 1331 (Fed. Cir. 2003) ("[A]n applicant may rebut a *prima facie* case of obviousness by showing that the prior art teaches away from the claimed invention in any material respect.").

c. Singh + Weinrich

Both Singh and Weinrich disclose the use of MgF_2 layers as coatings on a corresponding substrate. These MgF_2 layers are both permanent layers that impart anti-reflective properties to the corresponding substrate. That is, the combined teachings of these references disclose/suggest the use of a MgF_2 layer as a permanent anti-reflective layer for use on a corresponding substrate.

By comparison, Applicant's claimed process concerns the use of a MgF_2 layer as a **"temporary layer."** The temporary layer is coated onto an organic or mineral external layer and subsequently removed. *See, e.g.*, specification at page 2, lines 28-33; page 8, lines 4-5 ("After the various treating operations of the lens, in particular after the lens has been trimmed, the temporary protective later is removed.").

There does not appear to be any apparent reason in Singh or Weinrich to modify their disclosures by making their respective MgF_2 layers temporary layers. Indeed, such a modification would ultimately change the principle operation of the coated substrates in both Singh and Weinrich. For instance, loss of the MgF_2 layers in both Singh and Weinrich would result in substrates that do not have anti-reflective properties. This fact, alone, confirms that Applicant's claimed invention is patentable over the combination of Singh and Weinrich. *See* MPEP § 2143.01[VI] ("If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious.").

Further, and with respect to their respective disclosures concerning MgF_2 layers, Singh and Weinrich actually teach away from one another in at least two respects. First, and on the one hand, Singh suggests that the use of a MgF_2 layer as an external uppermost top layer has the disadvantage of staining the lens surface and distorting and reducing light transmission through the lens (col. 1, ll. 30-35). This problem is solved in Singh by the addition of a hydrophobic film as the topcoat layer. By comparison, Weinrich discloses the use of a MgF_2 layer as an external uppermost top layer (FIG. 1 and col. 3, ll. 18-32). Second, Singh discloses the deposition of a metal oxide layer onto the MgF_2 layer. By comparison, Weinrich discloses the deposition of a MgF_2 layer onto a MgO film. These opposing teachings provide strong evidence that there is no apparent reason to combined Singh with Weinrich. MPEP § 2145[X](D)(2) ("It is improper to combine references where the references teach away from their combination.").

d. Kondo

Kondo concerns "[a] composition for forming an antifouling film or an optical component having such an antifouling film" having a particular chemical compound (Abstract). The antifouling film is said to be "excellent in stain resistance and abrasion resistance on a substrate" col. 1, ll. 9-12). The placement of the Kondo antifouling film with respect to other films on the substrate is illustrated in FIGS. 1 and 2 below (illustrations and text added):

FIG. 1

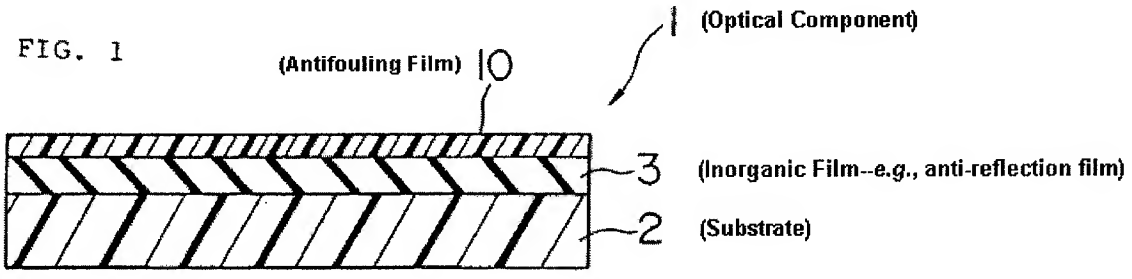
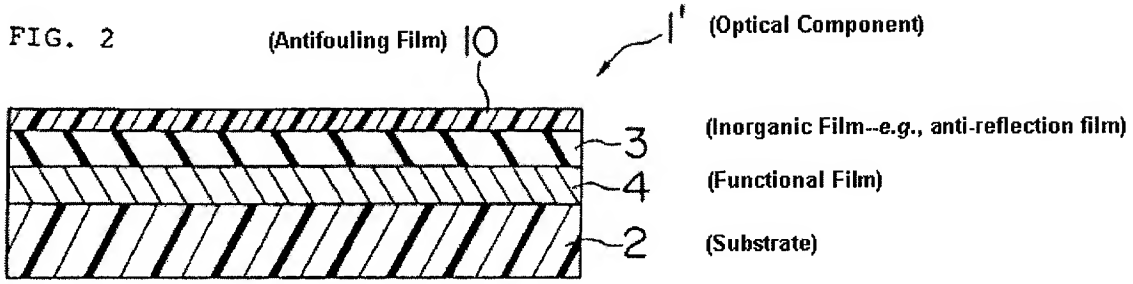


FIG. 2



The difference between FIGS. 1 and 2 is the addition of a functional film which can be positioned between the plastic substrate and the inorganic film (col. 6, ll. 49-51). This is explained as: "The functional film **4** interposed between the plastic substrate **2** and the inorganic film **3** can improve the physical properties for example the adhesivity, hardness, chemical resistance, durability, and dyeing property" (col. 7, ll. 60-63).

FIGS. 1 and 2 also illustrate Kondo's disclosure that (1) the antifouling film is the uppermost top layer of the substrate and (2) the inorganic film layer such as an anti-reflection film is stacked below the antifouling film.

e. ***Singh + Weinrich + Kondo***

The addition of Kondo to the mix does not cure the deficiencies of the combination of Singh and Weinrich. Indeed, it reinforces the fact that Singh and Weinrich teach away from one another. It also confirms that the combination of Singh/Weinrich/Kondo actually teach away from the claimed invention.

For instance, and similar to Singh, Kondo explains anti-reflective uppermost top coatings (such as a MgF_2 layer—Singh) have drawbacks ranging from being easily stainable, scratchable, and prone to image distortion with water contact (col. 2, l. 65, to col. 3, l. 9). This problem is solved by Kondo with the addition of a hydrophobic topcoat layer *ala* Singh. Therefore, Kondo reinforces the fact that Singh and Weinrich teach away from one another—*i.e.*, Singh discloses

the use of a hydrophobic topcoat over the MgF_2 layer, whereas Weinrich discloses the use of a MgF_2 layer as an external uppermost top layer.

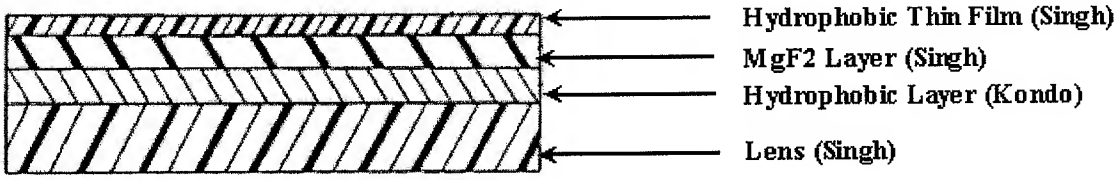
Further, Kondo reinforces both Singh's and Weinrich's disclosure of using a MgF_2 layer as a permanent layer to impart anti-reflective properties to the coated substrate. That is, the combination of Singh/Weinrich/Kondo fail to disclose or suggest Applicant's claimed temporary coating. If anything, the combination of these three references actually teach away from modifying the permanent MgF_2 layers into Applicant's claimed temporary layer. For instance, a person of ordinary skill in the art would be led to utilize a MgF_2 layer as a permanent layer to impart anti-reflective properties to the substrate. This is divergent from Applicant's claimed method which utilizes a MgF_2 layer as a temporary layer. *See In re Gurley*, 27 F.3d at 553. This is persuasive evidence that the claimed invention is patentable over the cited art. *See In re Peterson*, 315 F.3d at 1331.

For that matter, the Singh/Kondo combination also teach away from the claimed invention. As explained in detail above, both of these references explain that MgF_2 layers should not be used as uppermost top layers due to their characteristics of being easily stainable, scratchable, and prone to image distortion with water contact. This is divergent from Applicant's claimed method which utilizes a MgF_2 layer coated onto a organic or mineral external layer and then subjected to processing steps.

Additionally, the Examiner appears to be taking the position that although Singh and Weinrich fail to disclose, *inter alia*, "an organic or mineral external layer, as hydrophobic and/or oliophobic surface...,"Kondo discloses such a surface. Action at page 6. From this, it is would have been obvious to use the Kondo hydrophobic surface with the disclosures of Singh and Weinrich. *Id.* Applicant disagrees for the following reasons:

(i) Those skilled in the art would not have combined Kondo with Singh, seeing that the lens of Singh is already provided with an antifouling hydrophobic film. Singh at col. 1, ll. 5-7 ("This application relates to the art of bonding hydrophobic thin films of amphiphilic molecules to substrate surfaces for protection against abrasion and stains").

(ii) If the examiner is taking the position that a person of ordinary skill in the art would set the Kondo hydrophobic film below the Singh MgF_2 antireflection coating, such a position is contrary to common knowledge surrounding the use of hydrophobic films as antifouling (*e.g.*, dirt repelling) coatings. For instance, it cannot be disputed that Singh's MgF_2 coating is indeed a permanent coating. Further, Singh's treatment of this coating *via* its primer layer does not lessen the fact that the MgF_2 coating is still a permanent coating in which a "hydrophobic thin film" is ultimately deposited on. Therefore, the combination of Singh and Kondo would ultimately lead to the following lens stack which defies common knowledge:



As explained in Kondo, the purpose its antifouling hydrophobic film is to be used as a top layer to impart stain resistance to the lens. Kondo at col. 2, ll. 36-38. That is, Kondo's antifouling coating necessarily has an interface with the air and is not intended to lie between two layers (as illustrated above).

(iii) Kondo does not contemplate the deposition of a mere coating onto its antifouling coating. Therefore, any suggestion of depositing Singh's MgF_2 layer and primer film onto Kondo's coating (or placing Kondo's coating under Singh's MgF_2 layer and primer film) would simply be contrary to the spirit and true scope of Kondo's disclosure. There is simply no "apparent reason" under a *KSR* analysis to make such a modification.

f. Medwick

Medwick describes a glass article comprising a substrate coated with a stack of functional coatings, which are protected by a temporary (removable) protective coating (Abstract). This coating protects from external chemical and mechanical damage during shipping, handling and storage of the articles (Abstract). The temporary protective coating is a polymeric coating (col. 3, l. 26), preferably made of polyvinyl alcohol (col. 8, ll. 6-14), or a carbon coating (col. 3, l. 36).

Medwick also contemplates that its temporary polymeric or carbon protective coating can be applied onto a functional coating such as "anti-reflective coatings" (col. 6, ll. 40-42). These anti-reflective coatings can include metal oxides or oxides or metal alloys (col. 6, ll. 42-43).

There is no disclosure that its temporary protective coating can be a MgF_2 coating. Further, Medwick fails to mention or suggest that any further processing steps of its polymeric or carbon temporary coating should be performed—presumably because the coating is simply used to protect the substrate articles from external chemical and mechanical damage during shipping, handling and storage of the articles. Also, the optical articles employed in Medwick appear to concern large glass sheets (col. 1, lines 40-42), while no mention is ever made of ophthalmic lenses.

Further, and similar to Weinrich, Medwick appears to teach away from the claimed invention. For instance, Medwick discloses that its temporary polymeric or carbon protective coating can be deposited onto a metal oxide coating (col. 6, ll. 40-43). By comparison, Applicant's claimed treatment process concerns "a deposit of at least one non-fluorinated metallic oxide and/or of at least one non fluorinated metallic hydroxide on the temporary protective layer." That is, a person of ordinary skill in the art, upon reading Medwick, would be led in a divergent path from the path taken by Applicant—*i.e.*, Medwick discloses a process where a temporary polymeric or carbon protective coating is deposited onto a metal oxide film,

whereas Applicant's claimed treating process concerns the deposition of a non-fluorinated metallic oxide and/or of at least one non fluorinated metallic hydroxide on the temporary protective layer.

g. Singh + Weinrich +Kondo + Medwick

Medwick's addition to the Singh/Weinrich/Kondo combination also fails to render the claimed invention obvious. At best, the combination of Singh/Weinrich/Kondo/Medwick would result in the use of a polymeric or carbon based coating as a temporary coating (Medwick) to protect functional coatings such as the permanent MgF_2 anti-reflective coatings disclosed in Singh/Weinrich/Kondo. There does not appear to be any reason under the *KSR* rational to modify the Medwick polymeric or carbon based temporary coating to a MgF_2 temporary coating. Indeed, the disclosures in Singh and Kondo support this conclusion, as these references explicitly disclose (Singh) or implicitly suggest (Kondo) that MgF_2 layers (1) are to be used as **permanent** coatings for their anti-reflective properties and (2) should **not** be used as an uppermost external top layer.

Even assuming for the sake of argument that there is an apparent reason to modify Medwick's temporary coating to a MgF_2 coating (there is not as discussed above), there would be no apparent reason to perform further processing of such a temporary coating (other than to remove the coating from the substrate), much less Applicant's claimed treating steps for at least the following reasons:

- ***Weinrich and Medwick teach away from the claimed treating process.*** Weinrich and Medwick would lead a person of ordinary skill in the art to deposit a MgF_2 layer onto a metal oxide film, whereas Applicant's claimed treating process concerns the deposition of a non-fluorinated metallic oxide and/or of at least one non fluorinated metallic hydroxide on the temporary protective layer.
- ***Singh concerns permanent MgF_2 anti-reflective coatings.*** Although Singh discloses the deposition of a metal oxide layer onto the MgF_2 anti-reflective coating layer, it does so in the context of ensuring that a final external

hydrophobic film is applied to the uppermost surface of the lens. That is, the Singh MgF_2 layer is a permanent layer imparting anti-reflective properties to the substrate. There is no apparent reason to modify this permanent MgF_2 layer into a temporary layer and then treat such a layer with Applicant's claimed treatment steps with the end result being removal of the layer. The teachings of Weinrich and Medwick confirm this (see above bullet point).

- ***The Singh/Kondo teachings conflict with Weinrich's teachings.*** Singh and Kondo explicitly suggest that the use of anti-reflective layers such as MgF_2 layers have disadvantages when applied as the uppermost external layer. By comparison, Weinrich suggests the use of a MgF_2 layer as an uppermost external layer.
- ***The Weinrich/Medwick teachings conflict with Singh's teachings.*** Singh discloses the deposition of a metal oxide layer onto the MgF_2. By comparison, both Weinrich and Medwick disclose the deposition of a MgF_2 layer onto a metal oxide film.

Further, the Examiner's following statement concerning Medwick is incorrect, as it ignores the explicit teachings of this reference and the scope of the claimed invention:

> It would have been obvious to one with ordinary skill in the art to [use] magnesium as the metal for the for the oxide thereof because Medwick teaches as desirable the metallic oxide has transparent or substantially transparent to visible light as a property (col 6, lines 46).

Action at page 7. As explained above, Medwick discloses that its temporary polymeric or carbon protective coating can be applied **onto** a functional coating such as "anti-reflective coatings" (col. 6, ll. 40-42). These anti-reflective coatings can include metal oxides or oxides or metal alloys (col. 6, ll. 42-43). That is, a person of ordinary skill in the art upon reading Medwick would be led to use a temporary polymeric or carbon coating to protect a metal oxide permanent coating.

By comparison, Applicant's claimed process utilizes a MgF_2 temporary protective layer, in which a MgO layer can be deposited **on top** of the temporary coating (or formed on its external surface) so as to allow a quick trimming operation. If anything, Medwick teaches away from this aspect of the claimed invention in that it discloses the use of a MgO layer **below** the temporary layer.

3. There Is No Reasonable Expectation of Success that by Using Applicant's Claimed Treating Process, A Subsequent Trimming Process Would Work

Claims 72 and 73 include a further trimming step of the ophthalmic lens. By comparison, none of the cited references disclose or suggest the preparation of non fluorinated metallic oxides and/or hydroxides layer on the surface of a MgF_2 layer so as to provide a temporary coating allowing an ophthalmic glass to safely undergo a trimming operation. This is especially true where the trimming operation occurs within a relatively short period of time after deposition of the different layers (such as less than 48 hours—see claim 73). This is additional evidence of non-obviousness for at least claims 72 and 73. *See* MPEP § 2143.02 ("The prior art can be modified or combined to reject claims as *prima facie* obvious as long as there is a reasonable expectation of success") (citing *In re Merck & Co., Inc.*, 800 F.2d 1091 (Fed. Cir. 1986)).

E. Conclusion

Applicant respectfully submits that the claims are in condition for allowance, and an early notification to that effect is solicited. The Examiner is invited to contact the undersigned attorney at (512) 536-3020 with any questions, comments or suggestions relating to the referenced patent application.

Respectfully submitted,

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APPENDIX A
(Clean Copy of Abstract)